Responsible Gold and Climate Change – Implications for Institutional Investors

John Mulligan, Director of Market Relations | 12 March 2019 | London

WORLD GOLD COUNCIL

World Gold Council members

27 companies; 500+ projects; 100+ productive mines; operations in 45+ countries

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ALAMOS GOLD INC.
ANGLOGOLD ASHANTI
BARRICK
BUENAVENTURA
centerraGOLD
DETOUR GOLD
中国黄金 China Gold
eldoradogold
ENDEAVOUR MINING
Franco Nevada
GOLDEN STAR
GOLDCORP
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NEWCREST MINING LIMITED
NEWMONT
OCEANAGOLD
PRETIVM
Resolute
ROYALGOLD,INC
SD-GOLD 山东黄金 SHANDONG GOLD
we are one Sibanye Stillwater
TERANGA GOLD CORPORATION
WHEATON PRECIOUS METALS
YAMANAGOLD

World Gold Council – our mission

- Founded in 1987
- The **gold industry's market development organisation**
- Our mission: **To stimulate and sustain demand for gold**
- Focused on:
  - **Increasing investor demand for gold**
  - Raising industry standards, enhancing market infrastructure and providing market insight to increase market efficiency, transparency and trust
- Current key markets: North America; China; India

The wider context – gold and ESG

Context: OECD Due Diligence on Responsible Supply Chains*

- World Gold Council developed Conflict-Free Gold Standard in 2012/13
- **Due diligence processes in the gold supply chain**: e.g. LBMA, Responsible Jewellery Council and Electronics Industry Citizenship Coalition Standards
- **OECD due diligence framework** now covering a wider selection of minerals **–** e.g. London Metals Exchange (LME), Responsible Cobalt Initiative, Aluminium Stewardship Initiative
- Demands for **responsibly-sourced materials/minerals from downstream industries** – e.g. Responsible Minerals Initiative (RMI), emerging from Responsible Business Alliance
- **Institutional investors are increasingly interested in ESG** credentials of assets …and increasingly demanding demonstrable progress, particularly on climate change (TCFD, TPI, ClimateAction100+…)

**OECD Due Diligence Guidance for Responsible Supply Chains of Minerals from Conflict-Affected and High-Risk Areas*

Responsible sourcing is re-shaping the gold supply chain

Co-ordination and convergence: demonstrating the provenance of responsible gold…

Gold Mining

WGC RESPONSIBLE GOLD MINING PRINCIPLES

ICMM: PERFORMANCE EXPECTATIONS

INITIATIVE FOR RESPONSIBLE MINING ASSURANCE

ALLIANCE FOR RESPONSIBLE MINING: FAIRMINED STANDARD

Refining & Recycling

THE LONDON BULLION MARKET ASSOCIATION (LBMA): RESPONSIBLE GOLD GUIDANCE

DMCC: RESPONSIBLE SOURCING INITIATIVE

End-use / Consumer

RESPONSIBLE JEWELLERY COUNCIL (RJC): CHAIN OF CUSTUDY PROGRAMME

RESPONSIBLE MINERALS INITIATIVE

FAIRTRADE INTERNATIONAL: STANDARD FOR GOLD AND ASSOCIATED PRECIOUS METALS

SWISS BETTER GOLD ASSOCIATION: BETTER GOLD INITIATIVE

Responsible Gold Mining Principles

- **Based on established benchmarks** (e.g. UN Guiding Principles on Business and Human Rights; OECD Guidelines for Multi-National Corporations, etc).
- A framework that allows companies to **demonstrate that their gold is responsibly produced**.
- Intended to **complement existing frameworks** such as the International Council on Mining and Metals Performance Expectations.
- Intended to be a **gold industry leadership** initiative – not confined to World Gold Council member companies.
- Geared towards **large-scale mining** rather than ASM.

Responsible Gold Mining Principles

Principles (draft) – 10 umbrella principles; 50 principles

Environment	Social	Governance
1. Environmental stewardship	4. Safety and Health	8. Ethical conduct
2. Biodiversity, land use and mine closure	5. Human Rights and Conflict	9. Understanding our impacts
3. Responsible Resource Use	6. Labour rights	10. Supply Chain
	7. Working with communities	

Anticipate publication of ‘exposure’ draft of Principles and corresponding Assurance Framework in H1 2019 – implementation by 2020; reporting in 2021.

Responsible gold mining – progress and transparency

Leading gold miners' reporting and responsibility assurance processes, including;

- Global Reporting Initiative's Standards for Sustainability reporting
- ICMM's Performance Expectations
- United Nation's Guiding Principles Reporting Framework
- Responsible Mining Initiative's Risk Readiness Assessment

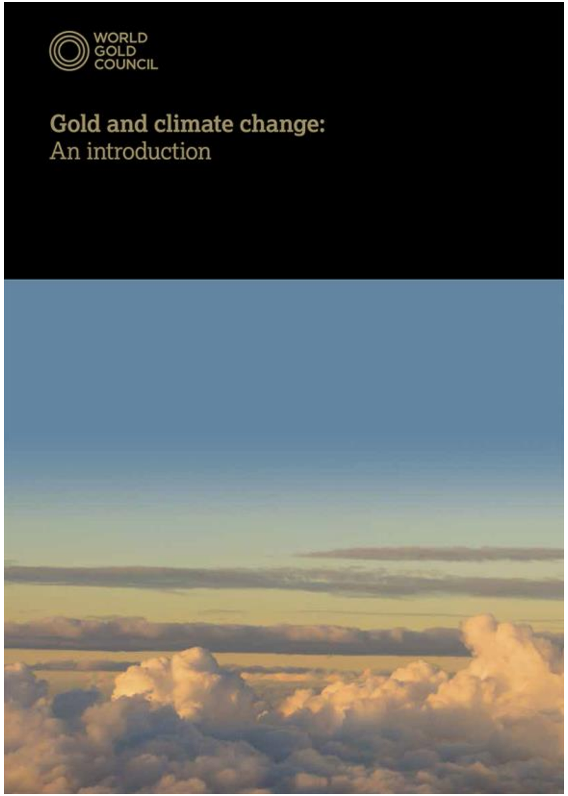
E.g. the 25 indicators currently used by a leading gold mining company to monitor ESG performance…

- **BUT are these performance indicators useful to investors/downstream end-users?**
- **How is this communicated?**

ISSUES & DATA

SOCIAL	ENVIRONMENTAL	GOVERNANCE
Occupational Health and Safety	Environmental and Social Management Systems	Conflict Minerals
Community Health and Safety	GHG Emissions	Land Acquisition and Resettlement
Child Labor	Energy Consumption	Stakeholder Engagement
Gender Equality	Non-tailings Waste	Business Integrity
Community Development	Biodiversity and Protected Areas	Legal Compliance
Security	Mine Closure and Reclamation	Verification
Indigenous Rights	Freshwater Quality and Quantity	
Artisanal/Small Scale Mining	Pollution	
Cultural Heritage	Tailings	
Labor Rights, Working Conditions		

Gold and climate change

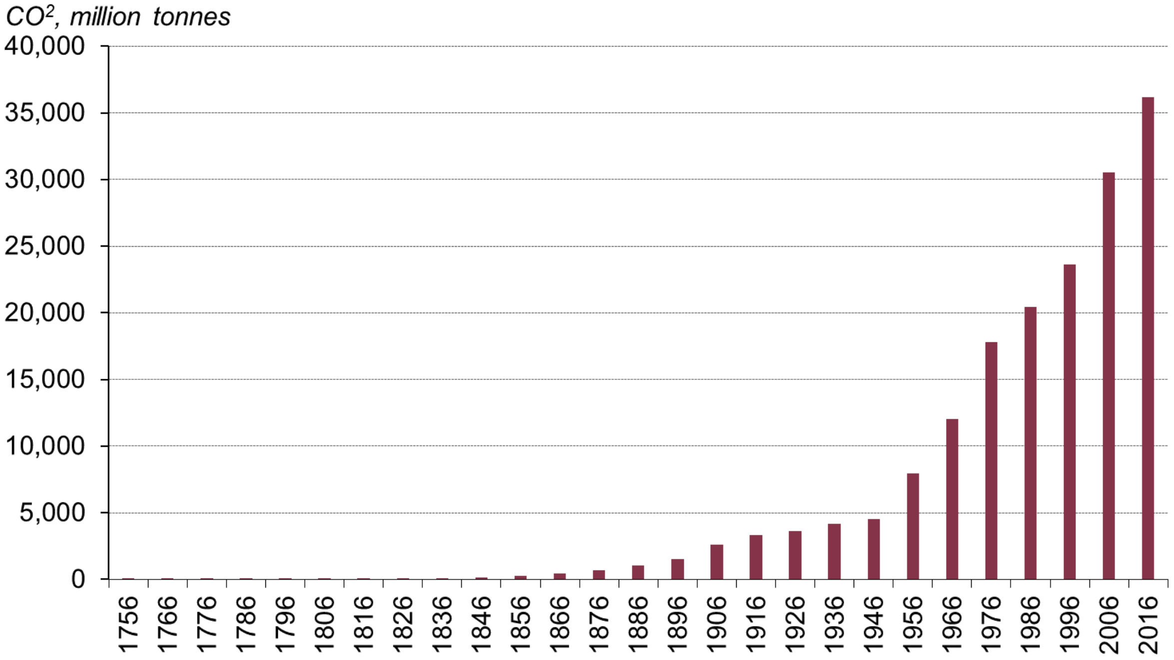


“The risk climate change poses is real and present”

“The risk climate change poses to businesses and financial markets is real and already present... climate-related risks and the expected transition to a lower-carbon economy affect most economic sectors and industries.”
Michael Bloomberg, Task Force on Climate-related Financial Disclosures (TCFD), 2017

“More ambitious climate action is needed to keep global warming well below 2°C... warming [above] 1.5°C would be substantial, damaging communities, economies and ecosystems across the world.”
G20 ‘Brown to Green’ Report 2018

CO² emissions from human activity, 1756 to 2016



Source: Global Carbon Project

Climate change is now a mainstream investment issue

Allianz is the latest insurer to bank on carbon neutrality

Madeleine Cuff
Tuesday, May 8, 2018 - 1:48am

Europe's Banks Move to Greener Finance in Response to Climate Change Risks

By Anna Hirtenstein | July 12, 2018

PENSIONSAge
The leading pensions magazine

By Natalie Tuck 27/02/19

BoE pension fund asked how it's addressing climate risks

BlackRock, the world's largest asset manager, recently made climate risk a top priority in engaging with corporations. 20 February, 2018 The Guardian

Demand for funds that incorporate ESG — environmental, social and governance — factors in their investment approaches is strong and growing across all major asset classes. By November 2017, almost €350bn was being managed in responsible investment funds in Europe — up more than a fifth on a year earlier.

Financial Times, April 5, 2018

Powerful Investors Push Big Companies to Plan for Climate Change

By David S. Rauf on May 3, 2018 SCIENTIFIC AMERICAN

Investors are committed to action on climate change

Declarations by investors to commit to policies/actions on climate change or sustainable energy	**Signatories' AUM**	**Number of Signatories (institutions)**	**Location**
Fossil Fuel Divestment Commitments	USD 5.6 trillion	**811**	Global
DivestInvest	USD 5.6 trillion	**780**	Global
Climate Action 100+	USD 26.3 trillion	**225**	Global
Institutional Investors Global on Climate Change (IIGCC)	EUR 21 trillion	**150**	Global
Investor Network on Climate Risk and Sustainability	USD 20 trillion	**130**	US/global
Montreal Climate Pledge	USD 10+ trillion	**120**	Global
Open letter to world's largest banks	USD 1.8 trillion	**100**	US/global
Business Alliance for Water and Climate	USD 60 billion	**49**	Global
Portfolio Decarbonization Coalition	USD 800 billion	**32**	Global
Declaration of Institutional Investors on Climate-Related Financial Risks	CAD 1.2 trillion	**30**	Canada

Task Force on Climate-related Financial Disclosures (TFCD)			
Supporters of the TFCD	Undisclosed	232	Global
Committed to implement the recommendations of the TFCD	Undisclosed	193+	Global

Task Force on Climate-related Financial Disclosures

The Task Force is focused on financial impact of climate-related risks and opportunities on an organization, rather than the impact of an organization on the environment.

Disclosure Recommendations

- **Governance:** Disclose the organization's governance around climate-related risks and opportunities.
- **Strategy:** Disclose the actual and potential impacts of climate-related risks and opportunities on the organization's businesses, strategy, and financial planning (where information is available)
- **Risk Management:** Disclose the processes used by the organization to identify, assess, and manage climate-related risks
- **Metrics and Targets:** Disclose the metrics and targets used to assess and manage relevant climate-related risks and opportunities (where information is available)

Challenging perceptions

Conventional wisdom:

Gold is rare and a lot of ore is mined and processed to produce pure metal. Consequently, gold production (mining and smelting) uses a lot of energy; therefore, on a per volume basis, it has a **relatively high greenhouse gas (GHG) intensity**.

Estimating this intensity is, typically, the endpoint for much academic research focusing on gold's carbon footprint.

We sought a wider and more constructive perspective on gold and its role in an investor's portfolio…

Gold mining - taking action…

Responsible gold mining companies are seeking to reduce their carbon footprint through **improvements in energy efficiency** and, where possible, **transition to low carbon energy sources**. Their initiatives vary greatly in type and scale but share the objective of lowering CO2e emissions and indicate the direction in which the industry is heading…E.g.

Goldcorp's Borden: the all-electric mine of the future	Solar power transforms IAMGOLD's Essakane mine	Award-winning optimised geo-thermal ventilation system at Barrick's Hemlo mine	Hydropower keeps emissions low at Centerra Gold's Kumtor mine
Newmont's fuel efficiency at Boddington and fuel-switching at Tanami	Moving to hydro-electric power at Kinross's Paracatu	Award-winning air control system introduced by Anglo-Gold Ashanti at Vaal River mine	Agnico Eagle creates employee-led energy reduction committees at most of its sites, with incremental efficiency improvements.

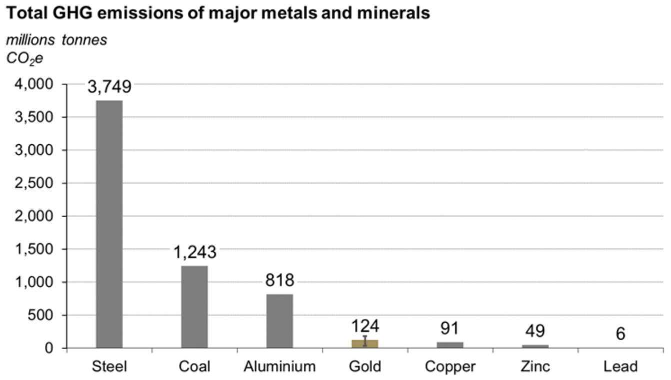
Gold’s role as a component in low-carbon technologies

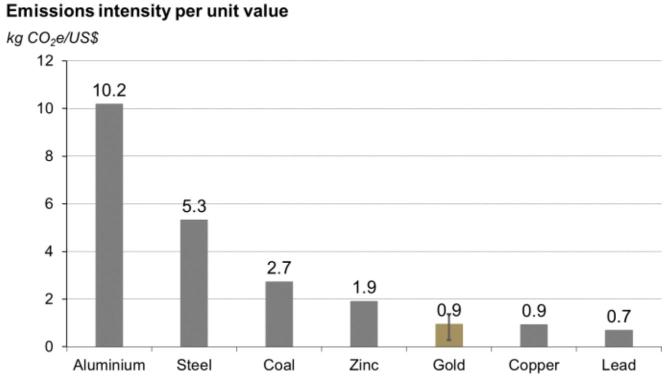
Gold in a nanoparticulate form has considerable potential in a range of applications that can help reduce GHG emissions. New technologies of note include:

- Nanostructured gold catalysts to help **convert CO_2 into useful fuels**
- Incorporating gold nanomaterials to **enhance hydrogen fuel cell performance**
- Including gold to **improve photovoltaics** and how the sun’s energy is captured and utilised.

Gold and climate change – GHG emissions levels

- Total global GHG emissions from gold production are relatively small - smaller than most other major mined products - and have a limited impact on global climate change.
- Gold is highly valuable and **its GHG emissions per unit of value are among the lowest** of all major mined products.
- In other words, the volume of GHG emissions associated with a dollar spent on gold is lower than for a dollar spent on most other mined products.





Production based on 2016 data. Sources: S&P Global Market Intelligence, World Steel Association & EIU, World Gold Council, Metals Focus.
Emissions data collated from a range of academic studies and trade association reports

Gold and climate change - summary

- Climate change is already an important consideration for mainstream investors and this is likely to increase.
- **Gold's overall carbon footprint is relatively small** - smaller than most other key metals and minerals.
- **On a value basis, gold's GHG emissions intensity is relatively low**, compared to most metals and minerals.
- Gold mining is making positive progress in lowering GHG emission by introducing **greater energy efficiency and low carbon energy sources**.
- Gold has considerable potential in a range of **technological applications that can help reduce GHG** emissions.
- Recent research suggests an investment in **gold may help reduce the carbon footprint of an investor's portfolio over time**. (This research deserves further exploration.)

The investment case for gold in a climate-change impacted world

The investment case for gold – the basics

Gold is a **highly liquid yet scarce asset, which is no one's liability.** As an investment it can play four fundamental roles in a portfolio:

- a **diversifier** that can mitigate losses in times of market stress
- a means to **enhance overall portfolio performance**
- a **liquid asset** with no credit risk that has outperformed fiat currencies
- a source of **long-term returns**

Our analysis shows that, over the last decade, adding between 2%-10% in gold to the average pension fund portfolio would have both increased returns and reduced volatility.

Gold and climate change - key findings for investors

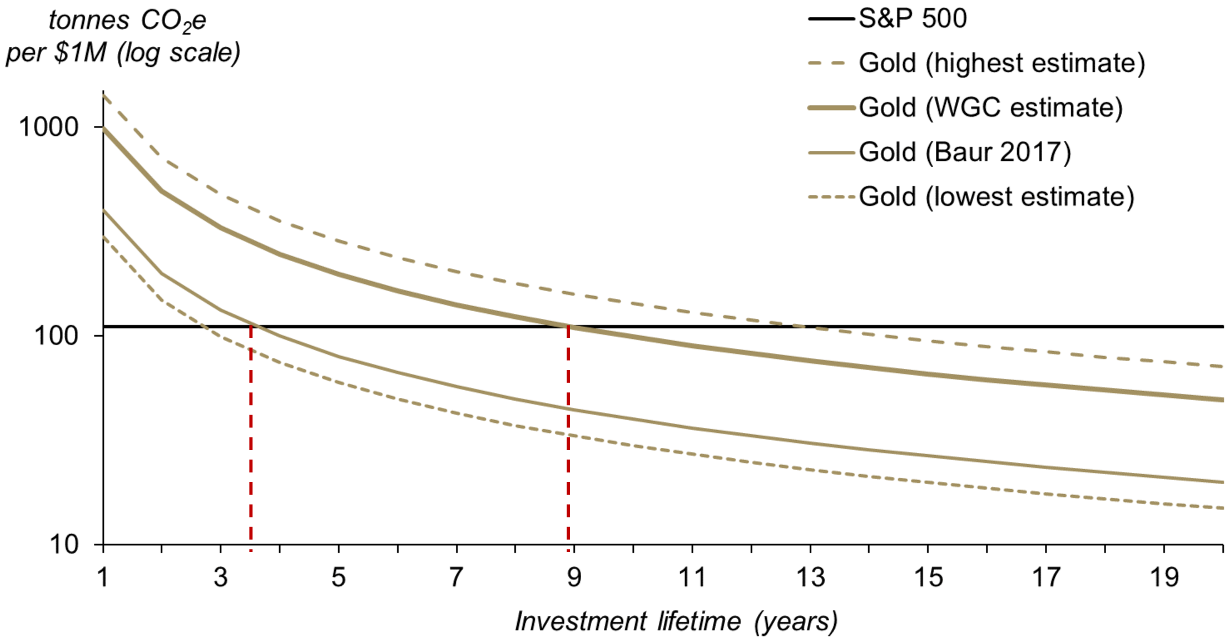
- Gold should be **less vulnerable to the physical and transition risks** of climate change than many other markets and asset classes:
  - It is virtually indestructible and highly recoverable
  - Diverse supply and plentiful near-market stocks (available for recycling) limit likely supply shocks
  - It is much less exposed to the potential negative impacts of carbon pricing than other metals and assets (i.e. the cost of carbon pricing as a % of the market value of a unit of gold is low).
- Gold may, therefore, provide an effective **hedge against the disruption and volatility that adapting to climate change is likely to bring** to other markets and assets.
- In addition to its investment role in helping mitigate market risk, recent research suggests gold can play **a positive role in enhancing the sustainability profile and reducing the carbon footprint of investment portfolios** over time.
  - "…*Adding gold to an S&P500 portfolio promotes the sustainability of a portfolio.*"

  Baur & Oll (2017)

Gold and climate change - portfolio implications

- The GHG footprint of a US$1M investment in newly-mined gold will soon become lower than the GHG footprint of an equivalent (US$1M) investment in the S&P500.
- An allocation to gold might help reduce the overall carbon footprint of a mainstream portfolio after 3 to 9 years.

Estimated annualised GHG footprint of an investment in gold and S&P500 over different investment lifetimes



Source: WGC analysis based on Baur & Oll (2017)

Implications and future work

We believe it important to achieve a better understanding of the scale and nature of gold’s climate change impacts; our initial findings on the GHG emissions of newly-mined gold provide a solid foundation for future work.

Several areas are worthy of further exploration:

- Identifying **agreed methodologies and better data** (via closer collaboration between industry, investors and academia)
- An examination of **the carbon footprint of gold’s downstream uses**
- Further analysis of how an **investment in gold might help reduce the carbon footprint of an investor’s portfolio** and insulate it from associated risks.

It is also fundamental that all gold industry stakeholders remain engaged in the dialogue around climate change issues and the transition to a low carbon economy.

Thank you

For more information:

https://www.gold.org/research/gold-and-climate-change

https://www.gold.org/about-gold/gold-supply/responsible-gold/responsible-gold-mining-principles

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